

# United States Department of the Interior

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## Memorandum

To: Regional Director, U.S. Fish and Wildlife Service  
Pacific Southwest Region

From: Donald R. Glaser  
Regional Director 

Subject: Updated Adaptive Management Plan for the Implementation of Reasonable and Prudent Alternative Component 3 from 2008 Biological Opinion on the Long-Term Coordinated Operation of the Central Valley Project (CVP) and State Water Project (SWP)

On July 21, 2011, the Bureau of Reclamation transmitted to the Fish and Wildlife Service (Service) a memorandum describing planned CVP operations and expected SWP operations during the months of September, October and November 2011. The purpose of the planned operations is to satisfy the requirements of Component 3 of the Reasonable and Prudent Alternative (RPA), also referred to as the Fall X2 action, in the 2008 Biological Opinion on the effects of the Coordinated Long-Term Operation of the CVP and SWP on delta smelt and its designated critical habitat. The memorandum describes operations that will augment delta outflow during the months of September through November, with X2 (an index for the location of the low salinity zone) achieving an average value of 74 km in September and October, and outflow adjusted in November in response to actual runoff in November. The memorandum also committed Reclamation to provide an updated Adaptive Management Plan (AMP) for implementation of Component 3 to the Service in the near future. The purpose of this memorandum is to transmit the updated AMP to the Service.

Component 3 of the RPA expressly requires that the Fall X2 action be adaptively managed, to ensure that the implementation of the action addresses Fall X2 uncertainties about its effectiveness and water-efficiency. New scientific information developed during implementation may, as circumstances warrant, lead to changes to the Fall X2 action itself. The development of new scientific information entails studies of the physical and biological processes that are affected, or potentially affected, by the Fall X2 action. A 2010 draft AMP prepared by Reclamation, the Service, and scientific experts in the Delta proposed a program of studies addressing key topics, including hydrodynamic processes and sediment dynamics of the low-salinity zone (LSZ), nutrient dynamics, and effects and fate of ammonium in the LSZ.

The updated 2011 AMP that this memorandum transmits has gone through several revisions and reflects consideration of input from a variety of reviewers and commenters, including agency scientists and policymakers, academics, stakeholders, and managers of the Interagency Ecological Program (IEP). The updated AMP is more comprehensive than the 2010 document, and explicitly addresses all the necessary elements of adaptive management.

An outside expert review of an earlier draft version of the 2011 AMP supervised by the Delta Science Program concluded with the issuance of a review report on July 1, 2011. The charge to reviewers focused on the adequacy and appropriateness of the approach to adaptive management laid out in the AMP. The review concluded that the draft AMP had “no fatal errors,” and that adaptive management of fall outflow has a high probability of producing new information of high management value. The report was also sharply critical of some aspects of the AMP, and provided 17 specific recommendations for revision. The central thrust of the panel’s advice was that the plan should focus on getting the right collection of monitoring and studies into the field this fall, and that some elements of the AMP, including quantitative modeling, should be set on a parallel track with a longer time horizon.

The review was highly valuable to the agencies and has informed both revision of the AMP and implementation and planning for fall 2011 fieldwork. The attached AMP includes the following major improvements that are responsive to the outside review:

- Greatly improved explanation of the conceptual model, which now incorporates a more general ecosystem-based view of estuarine habitats approach following Peterson (2003), and also more explicitly recognizes the likely role of rapid changes in ecosystems.
- Clearer conceptual model links between physical effects to biological effects, including expected beneficial effects on delta smelt.
- More advanced, detailed description of studies being planned for fall 2011, including a clear plan to evaluate delta smelt growth, health, and fecundity.
- More advanced description of zooplankton and benthos studies that are being planned and/or integrated in fall 2011.
- More detailed description of specific studies addressing questions combining historical analysis with analysis of new information that will be obtained in the field in 2011 and later.

Some issues raised by the review panel, including the selection of a “singular personality” to lead the studies who will have the freedom to ensure effective implementation, analysis, and review, are subject of ongoing discussions. We agree that such a person is needed, but finding someone with the appropriate combination of skills and interests will take time. A few other issues, including the adoption of standardized hydrodynamic model versions, grids, and boundary conditions, will require cooperative engagement among multiple parties and will be subjects of ongoing discussion.

The updated AMP provides a solid framework with which to move forward, and we believe it satisfies the intent of RPA Component 3. We also believe that the AMP should be viewed as a "living document" that will continue to evolve as adaptive management proceeds. We expect significant additional modifications to the plan in August as 2011 implementation discussions proceed, and additional evolutionary changes during the winter as the first year's data are analyzed and the parallel quantitative modeling effort moves forward. We generally expect that the first annual review will occur in June 2012, and expect discussions during the coming fall months will establish agency and stakeholder roles in that review. This version of the AMP represents a milestone in an ongoing cooperative process involving Reclamation, the Service, and others.

Reclamation expects that because of the broad agency interest in this AMP and its complexity, the implementation of the scientific studies and monitoring associated with the AMP will be managed by the IEP. The IEP has established expertise in long-term Delta ecosystem monitoring and investigation, including the Pelagic Organism Decline studies. The IEP also provides a means of assuring that the implementation of the AMP can be effectively managed by agency policymakers.

Reclamation appreciates the work of Service staff to implement the Fall X2 action this year, and looks forward to continuing the good working relationship in the future.

Attachment: Adaptive Management of Fall Outflow for Delta Smelt Protection and Water Supply Reliability